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CIVIL SERVICE QUESTIONS IN MATHEMATICS.

BY LEONHARD FELIX FULD,

ASSISTANT CHIEF EXAMINER, MUNICIPAL CIVIL SERVICE COMMISSION, NEW YORK.

PROMOTION TO ASSISTANT COURT CLERK.

[CITY MAGISTRATES' COURT.]

ARITHMETIC.

(Weight 15.)

1. Add: 6,475,869
8,697,081
7,586,453
2,948,675
5,465,768
4,321,043
9,293,949
2,345,678
9,999,999

2. The population of a city Jan. 1, 1915, was 123,450; during the year there were 2,469 births, 1,976 deaths, 1,258 people moved in and 701 moved away. What was the population Jan. 1, 1916?

3. Paid $7,975 for land at $55 an acre. Sold a part of it for $3,625 at $62.50 an acre, and the remainder at $50 an acre. What was the gain or loss?

4. If iron rails weigh 384 pounds a piece, how many rails would be required for a track whose total weight is 1,105,920 pounds?

5. If the water supply for a city averages 3,456,789 gallons daily, how many gallons would supply it for 359 days?

FIRST GRADE CLERK.

ARITHMETIC.

(*Weight 3.*)

1. A certain bank received and paid out the following amounts of money in one week:

	Received.	Paid Out.
Monday	$150,267.50	$ 99,812.56
Tuesday	85,072.81	122,917.88
Wednesday	199,768.57	75,856.24
Thursday	88,507.99	180,699.01
Friday	55,564.87	52,785.26
Saturday	101,868.17	88,802.17

Find the difference between the total receipts and payments.

2 A fence one mile long was under repair. On the first day, $113\frac{1}{4}$ yards were completed; on the second day, $86\frac{3}{8}$ yards; on the third day, $99\frac{7}{12}$ yards; on the fourth day, $83\frac{1}{2}$ yards; on the fifth day, $170\frac{7}{12}$ yards; and on the sixth day, $99\frac{7}{8}$ yards. How many feet of fence were unfinished at the end of the six days.

3. There are eight tenement houses on a certain block on Third Ave. The street floors are rented at $50 each per month for business purposes. The four floors above are divided into four apartments on each floor, the rent of each apartment being, on the average, $25 per month. If all the floors were tenanted and the rent was paid regularly, how much would the owner of the eight houses receive in rent each month?

4. A man bought a house for $15,500 and spent $900 on repairs. He then sold the house for $17,220. Find the gain per cent. in this transaction.

5. A merchant borrowed from a bank a certain sum of money at 6 per cent. per annum. In 1 year, 8 months, 18 days he paid the bank in full, $1,764.80. What was the amount of the original loan?

JUNIOR DRAUGHTSMAN, [GRADE B].

Duties: Junior Draughtsman will be required to make sketches, tracings or drawings of an elementary character. They will assist in making maps, charts or diagrams and will perform computations incident to the work of draughting.

MATHEMATICS.

(*Weight 2.*)

1. Add together the following: 3′ 9 and ⅝″, 2.75′, 18 and ¾″, 6.5′, 4 and ¾′, 106 and 15/16″, 75′, 9.5′, 49 and 7/16″, 2′ 8 and ¼″.
2. How many square yards of pavement are in a portion of a street 36 ft. wide with a length on one curb of 128 ft. and on the opposite curb 139 ft.? How many cubic yards of Macadam if 9″ thick?
3. A street starting at elevation 36 rises for a mile at 1¼ per cent. grade and then for 300 feet falls at a 2 per cent. grade. What is the elevation at the end?
4. A standpipe of concrete is 10 ft. inside diameter, 2 ft. thick, 15 ft. high and has a bottom 2′ 6″ thick. How many cubic yards of concrete are required to build it?
5. How many square feet of surface are there on a peaked roof 60 ft. long, 30 ft. wide, with a rise of 9 ft. and rafters projecting 2 ft.?

Massachusetts Institute of Technology,
February 16, 1917.

Dear Professor Metzler:

Professor J. W. Young—as chairman of the National Committee on Mathematical Requirements—has requested Professor D. E. Smith and myself to cooperate in the preparation of a report on the criticisms of mathematics, making a critical examination of the grounds of the more prominent and more responsible attacks on mathematics, with a view to determining the criticisms which are clearly not valid, those which are clearly justifiable, and those concerning the validity of which there is reasonable doubt, with a view in the latter case to resolving the doubt if possible.

We desire, with your permission, to bring the matter to the attention of readers of the Mathematics Teacher, with the hope that they may assist us by bringing to our attention all possible material of value, particularly such as might otherwise escape attention. Communications on the subject may be addressed either to D. E. Smith, Teachers College, Columbia University, or to H. W. Tyler, Massachusetts Institute of Technology, Cambridge.

Very truly yours,

H. W. TYLER.

PHILADELPHIA, January 4, 1917.

TO THE MEMBERS OF THE ASSOCIATION:

Our territory is so large that the majority of our members find it inconvenient, if not impossible, to attend the spring and fall meetings of the Association. It is the object of the Council, however, to form Sections whenever a group of members are conveniently located near some town or city in which a Section of the Association might be expected to thrive. The Sections already organized in New York, Pittsburgh, Rochester, Syracuse and Baltimore usually meet two or three times a year. The meetings attract not only the local members of the Association, but also prove interesting to a larger group of teachers who have not yet identified themselves with us. The Section in Baltimore was organized at the last meeting of the Association, December 2, 1916. It starts with a nucleus of about fifty members and promises to do an important work in Baltimore, Washington, and the South.

We find that some of our members are not receiving notices of sectional meetings which they might attend at least occasionally. Such members are asked to send their names to the sectional officers or to the Secretary of the Association. All members of the Association may become members of the Sections upon application. For your convenience, the officers of the Sections are listed in this number of the MATHEMATICS TEACHER.

The officers of the Association are anxious to receive suggestions from any of the members in regard to the work of the

Association. Those wishing to present papers at the general meetings or at the sectional meetings, should notify the respective secretaries. In many professional associations there is a large supply of papers awaiting presentation, and we wish to impress our membership that the council will heartily welcome papers from any of our members who may have ideas meriting a place on our program.

Our work must be largely missionary. It is our duty to improve the teaching of mathematics from the kindergarten to the university. Every member of the Association should endeavor to interest in our work those who are not members and who may be benefited by joining the Association. We are more than five hundred strong, but in a territory as large as ours, and including school and college teachers, we should be five thousand strong.

The MATHEMATICS TEACHER reaches many who are not members of the Association. Its subscription list includes libraries from the Atlantic to the Pacific, as well as names of many leading teachers beyond our geographic boundaries. Perhaps some of your friends would become subscribers to the MATHEMATICS TEACHER even though they might feel unable at this time to join the Association. Our journal is undoubtedly the leading magazine in the high-school field devoted to the teaching of mathematics. There are other excellent journals which combine this with other allied purposes, but our journal is devoted chiefly to the pedagogical side of our work. We should have more subscribers, not primarily for their financial help, but because the MATHEMATICS TEACHER will exert a helpful influence upon all teachers of mathematics, and will prove to be a great stimulus and inspiration in their professional work.

Will you help us to make the coming year one of growth and greater activity for the better teaching of mathematics?

Very sincerely yours,

J. T. RORER.